The SPOT™ Insight Monochrome digital camera provides a wide field of view, allowing more of the sample to be visible in the images and eliminating the need for expensive de-magnifying optics. This versatile camera provides 14-bit digitization and deep pixel wells for high dynamic range. The Insight's refined electronic design produces low noise images even when light is limited. Binning, gain and ROI adjustments are supported to increase frame rates when required. The suggested applications for this camera include wide-field monochrome imaging, bright fluorescence, documentation, inspection, and phase contrast studies.

The SPOT Insight includes SPOT Basic software (Windows® and Mac® OS) for real-time image preview and acquisition, and drivers are available for many third party imaging software applications. IEEE 1394 Firewire™ connectivity enables effortless installation on computers and laptop portability. The SPOT Insight camera’s robust design and well-documented, free Software Development Kit (SDK) provide easy OEM integration.

<table>
<thead>
<tr>
<th>Features</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>40 MHz live mode (dual channel 20 MHz)</td>
<td>High speed imaging for real time viewing</td>
</tr>
<tr>
<td>2048 x 2048 4.0 Mp image capture</td>
<td>Resolves fine detail</td>
</tr>
<tr>
<td>Programmable gain (1-20x)</td>
<td>Facilitates live mode previews of low light specimens</td>
</tr>
<tr>
<td>14-bit x 20 MHz capture</td>
<td>Extra bit depth is ideal for image enhancement</td>
</tr>
<tr>
<td>15.2 mm x 15.2 mm imaging area 21.4 mm FN</td>
<td>Increases the field of view to closely match the field of view in the microscope eyepiece</td>
</tr>
<tr>
<td>Interline progressive scan CCD</td>
<td>Electronic shuttering eliminates mechanical shutter shortcomings related to speed, wear, and vibration</td>
</tr>
<tr>
<td>FireWire® interface</td>
<td>Allows for effortless installation, hot-swapping, and laptop connectivity for greater ease of use</td>
</tr>
</tbody>
</table>

SPOT™ Imaging Solutions
A division of Diagnostic Instruments, Inc.
**Data Sheet: Insight 4.0 Mono**

### Items Included
- IN1400, IN1401, IN1410, IN1411
- SPOT Basic Software
- SPOT Advanced Software (optional)
- SPOT Advanced Software Modules (optional)
- SPOT Advanced Software Development Kit
- Native Drivers for 3rd Party Software
- Computer Operating System Compatibility

### Specifications

**Sensor**
- Resolution: 4.0 Mp
- Sensor Type: Kodak KAI-4021-M with cover glass. Monochrome progressive scan interline CCD
- Active Pixels: 2048 x 2048
- Pixel Size: 7.4µm x 7.4µm
- Optical Format: 4/3"
- Active Imager Size: 15.16 mm x 15.16 mm
- Exposure Time: 1 ms to 536 seconds
- Binning: 1x1, 2x2, 3x3, 4x4
- Region of Interest: User selectable from 50x50 to full resolution
- QE
  - No IR Filter: IN1400, IN1401
  - With IR Filter: IN1410, IN1411

**Camera**
- Lens Mount: C-mount or F-mount
- Computer Interface: FireWire® IEEE 1394a interface
- Trigger Connectors: External trigger input (TTL), Exposure sync output (TTL)
- Tripod Mount: 1/4"-20 UNC
- Weight: F-Mount 1.6 lbs. (0.72kg), C-Mount 1.4 lbs. (0.62kg)
- Size
  - (F-Mount): 2.79" x 3.75" x 7.67"
  - (C-Mount): 2.79" x 3.75" x 6.2"
- Power Requirements: 100-240 VAC, 47/63Hz
- Operating Environment: 0 to 30°C ambient, 0 to 80% relative humidity (non-condensing)
- Certifications: CE, FCC Class A, EN60950, RoHS

**Quantum Efficiency**
- IN1400, IN1401, IN1410, IN1411

**Captured Frame Rates**
- Captured Frames per Second *

<table>
<thead>
<tr>
<th>Binning level</th>
<th>Region of interest</th>
<th>2048 x 2048</th>
<th>1024 x 1024</th>
<th>512 x 512</th>
<th>256 x 256</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 x 1</td>
<td></td>
<td>3.6</td>
<td>6.8</td>
<td>12.0</td>
<td>19.5</td>
</tr>
<tr>
<td>2 x 2</td>
<td></td>
<td>6.7</td>
<td>11.8</td>
<td>19.0</td>
<td>27.5</td>
</tr>
<tr>
<td>3 x 3</td>
<td></td>
<td>9.4</td>
<td>15.8</td>
<td>23.9</td>
<td>32.8</td>
</tr>
<tr>
<td>4 x 4</td>
<td></td>
<td>11.5</td>
<td>18.4</td>
<td>26.6</td>
<td>34.2</td>
</tr>
</tbody>
</table>

*Frame rate exposure with post-processing deferred, taken with 2.6 GHz Xeon processor running Windows XP. Capture rates on other computers or OS platforms may vary.

**Computer Operating System Compatibility**
- Windows® XP SP3 (32-bit), Vista (32 or 64-bit), 7 (32 or 64-bit) and 8 (32 or 64-bit)
- Mac®: OS 10.6 - 10.8

**Minimum Computer Requirements**
- PC: 1GHz Pentium 4 (or equivalent x86 SSE2 processor), 1 GB RAM, IEEE 1394a port
- Mac®: Intel processor, 1 GB RAM, IEEE 1394a port
- Mac® and PC video: 24-bit color @ 1024 x 768 resolution

**SPOT Advanced Software**
- Available (includes macro feature, floating taskbars and image archiving database)
- Available (adds image display intensity scaling, peripheral device control and extended depth of focus)
- Available for Mac® and Windows®

**Software Development Kit**
- Available for Mac® and Windows®
- Available (call or visit our website)

**Warranty**
- 2 years from date of purchase

**Catalog Number**

| SPOT Basic Software | SPOT Advanced Software | SPOT Advanced Software Modules | SPOT Advanced Software Development Kit | Native Drivers for 3rd Party Software | Computer Operating System Compatibility | Minimum Computer Requirements | SPOT Advanced Software
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Live mode viewing window with controls</td>
<td>Image capture window</td>
<td>Image capture setups are user defined, named and saved</td>
<td>Auto or manual exposure for Live and captured images</td>
<td>Zoom control on Live and captured images</td>
<td>Auto white balance</td>
<td>Flatfield correction</td>
<td>Measurement tools</td>
</tr>
</tbody>
</table>

**Power Requirements**
- 100-240 VAC, 47/63Hz

**Operating Environment**
- 0 to 30°C ambient, 0 to 80% relative humidity (non-condensing)

**Certifications**
- CE, FCC Class A, EN60950, RoHS

**Specifications**
- 2 years from date of purchase

**Technical Support**
- SPOT Basic Software Features
- Live mode viewing window with controls
- Image capture window
- Image capture setups are user defined, named and saved
- Auto or manual exposure for Live and captured images
- Zoom control on Live and captured images
- Auto white balance
- Spot or average metering
- Flatfield correction
- Annotation
- Calibration mark
- Measurement tools
- Image enhancement tools
- Sequential image capture and playback
- Report generator
- Interactive print dialog
- Help menu
- 3rd Party Software Interface: Twain for Windows®, SPOT Image Capture Application & AppleEvent for Mac®

**Items Included**
- Camera Head
- With lens cap
- FireWire® cable
- Data cable (6-pin)
- Power supply
- With power cord, 1.3" (33mm) x 1.97" (50mm) x 3.35" (85mm), 0.34 lbs. (0.16kg)
- Quick Start Installation Guide
- Instructions on how to get up and running quickly
- Software CD
- Includes SPOT Basic software and User Guide
- Warranty
- 2 years from date of purchase

**Software Development Kit Available for Mac® and Windows®**
- Native Drivers for 3rd Party Software Available (call or visit our website)

**Specifications**
- Typical and subject to change.

**Contact Information**
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